

What is claimed is:

- 5 1. An overlapping command committing method of dynamic cycle pipeline, for a chip having pipeline structure, comprising the following steps:
- (a) reading the command from a command buffer and storing it in a command register;
- (b) decoding the command;
- (c) preprocessing operators of the command, preparing initial operators of each stage
10 of the pipeline, and storing them into a initialization register;
- (d) judging whether the pipeline is not full, if it is not full, directly inserting a new command and then ending; otherwise, waiting for an exiting signal from the command in the pipeline in the last pipeline period before exiting;
- (e) after receiving the exiting signal, judging whether there is command relevance
15 between the new command to be inserted and the old command to exit, if yes, then inserting the new command after the old command exit, and then ending; otherwise, performing the next step;
- (f) when the old command is in the last cycle of the pipeline, committing the new command to the pipeline.
- 20 2. The command committing method of Claim 1, characterized in that the Step (b) also includes a step of judging whether there is illegal command, if there is, then deleting the illegal command and returning to Step (a); otherwise, conducting the next step.
3. The command committing method of Claim 2, characterized in that said illegal command includes: the instructions with incorrect command code and/or carrying
25 unreasonable command parameters.
4. The command committing method of Claim 1 or 2, characterized in that the exiting signal is released before two stages when the new command enters the pipeline stage.
5. The command committing method of Claim 1 or 2, characterized in that the command relevance means that the new command and the old command cannot share the
30 hardware processing module in the same one pipeline stage.
6. The command committing method of Claim 1, characterized in that in the Step (e), it is also judged in which stage of the pipeline stage switch shall be conducted for the new and old commands, and the field switch is completed in the corresponding pipeline stage where the new and old commands overlaps.

5 7. The command committing method of Claim 1, characterized in that in the Step (e),
it is also judged whether there is any field conflict between the new command and the old
command, if there is, then the field of the new command is added into the pipeline when
committing, while the field of the old command enters into the field branch and maintains
10 until the last time that the old command uses this field; in case there is no field conflict, the
field switch is conducted in the corresponding pipeline stage after committing.

8. The command committing method of Claim 1, characterized in that in the Step (c),
it is required to provide the initial status of all kinds of commands at the entry to the
pipeline.

15 9. The command committing method of Claim 1, characterized in that the said
commands include reading/writing memory commands, reading/writing control register
commands and various searching commands.

10 10. A chip on which the method according to Claim 1, 2, 3, 6, 7, 8 or 9 is carried out
having the cycle pipeline structure, comprising: interface of host computer, input buffer,
command processing unit, and result unit; the command processing unit comprises:
20 command interpreter and pipeline performing unit; characterized in that the command
interpreter further comprises: command buffer controllers, command register, processing
unit of operator, pipeline initialization register and control automaton, which are connected
in order; the control automaton controls the command buffer controller to read a command
from the command buffer, and stores the command into the command register; the control
25 automaton decodes the command, and controls the processing unit of operator to prepare
initial operators of each pipeline stage according to the type of the command, and stores
them into the pipeline initialization register.